

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(I) APPLICANT: Shashoua, Victor E.

5 (ii) TITLE OF INVENTION: NEUROPROTECTIVE PEPTIDES AND  
USES THEREOF

(iii) NUMBER OF SEQUENCES: 19

(iv) CORRESPONDENCE ADDRESS:

10 (A) ADDRESSEE: Wolf, Greenfield & Sacks, P.C.  
(B) STREET: 600 Atlantic Avenue  
(C) CITY: Boston  
(D) STATE: MA  
(E) COUNTRY: USA  
(F) ZIP: 02210

(v) COMPUTER READABLE FORM:

15 (A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25

(vi) CURRENT APPLICATION DATA:

20 (A) APPLICATION NUMBER:  
(B) FILING DATE:  
(C) CLASSIFICATION:

(viii) ATTORNEY/AGENT INFORMATION:

25 (A) NAME: Van Amsterdam, John R.  
(B) REGISTRATION NUMBER: 40,212  
(C) REFERENCE/DOCKET NUMBER: N0260/7023

(ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: 617-720-3500  
(B) TELEFAX: 617-720-2441

30 (2) INFORMATION FOR SEQ ID NO:1:

(I) SEQUENCE CHARACTERISTICS:

35 (A) LENGTH: 12 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: YES

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 1

5 (D) OTHER INFORMATION: /note= "Xaa = Asp, Gln, Gly  
or Tyr"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 2

10 (D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 3

15 (D) OTHER INFORMATION: /note= "Xaa = Asp, Asn, Thr  
or Glu"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 4

20 (D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 5

25 (D) OTHER INFORMATION: /note= "Xaa = Asp, Ser,  
Gly, Asn or Leu"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 6

30 (D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 7

35 (D) OTHER INFORMATION: /note= "Xaa = Ala, Asp, Phe, Lys, Thr,  
Tyr, Arg, Val, Cys or Ser"

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 8

(D) OTHER INFORMATION: /note= "Xaa = any amino acid"

(ix) FEATURE:

(A) NAME/KEY: Region

5 (B) LOCATION: 9

(D) OTHER INFORMATION: /note= "Xaa = Asp, Glu, Gly, Ser, Thr, Met, or Asn"

(ix) FEATURE:

(A) NAME/KEY: Region

10 (B) LOCATION: 10

(D) OTHER INFORMATION: /note= "Xaa = any amino acid"

(ix) FEATURE:

(A) NAME/KEY: Region

15 (B) LOCATION: 11

(D) OTHER INFORMATION: /note= "Xaa = any amino acid"

(ix) FEATURE:

(A) NAME/KEY: Region

20 (B) LOCATION: 12

(D) OTHER INFORMATION: /note= "Xaa = Glu, Gln, Ala, Leu or Asn"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

25 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:2:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 amino acids

(B) TYPE: amino acid

30 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: YES

(ix) FEATURE:

35 (A) NAME/KEY: Region

(B) LOCATION: 2

(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

5 (A) NAME/KEY: Region  
(B) LOCATION: 4  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

10 (A) NAME/KEY: Region  
(B) LOCATION: 7  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

15 (A) NAME/KEY: Region  
(B) LOCATION: 10  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(ix) FEATURE:

20 (A) NAME/KEY: Region  
(B) LOCATION: 11  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

25 Asp Xaa Asp Xaa Asp Gly Xaa Ile Asp Xaa Xaa Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:3:

(I) SEQUENCE CHARACTERISTICS:

30 (A) LENGTH: 12 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

35 Asp Gly Asp Gly Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:4:

(I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 14 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

10 Lys Lys Asp Gly Asp Gly Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:5:

(I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 16 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

20 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Lys Lys Lys Lys Asp Gly Asp Gly Asp Phe Ala Ile Asp Ala Pro  
Glu  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:6:

25 (I) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 nucleotides
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: oligonucleotide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

AGTTGAGGGG ACTTTCAGG C  
21

(2) INFORMATION FOR SEQ ID NO:7:

5 (I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 20 nucleotides  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: oligonucleotide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

TGCAGATTGC GCAATCTGCA  
20

15 (2) INFORMATION FOR SEQ ID NO:8:

(I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 21 nucleotides  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
20 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: oligonucleotide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

25 CGCTTGATGA GTCAGCCGGA A  
21

(2) INFORMATION FOR SEQ ID NO:9:

(I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 20 amino acids  
(B) TYPE: amino acid  
30 (C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

5 Lys Lys Lys Lys Asp Gly Asp Gly Asp Phe Ala Ile Asp Ala Pro  
Glu  
1 5 10 15  
Lys Lys Lys Lys  
20

(2) INFORMATION FOR SEQ ID NO:10:

10 (I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 8 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Asp Phe Ala Ile Asp Ala Pro Glu  
1 5

20 (2) INFORMATION FOR SEQ ID NO:11:

(I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 9 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
25 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(ix) FEATURE:

30 (A) NAME/KEY: Region  
(B) LOCATION: 1  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5

(2) INFORMATION FOR SEQ ID NO:12:

5 (I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 9 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Gly Asp Phe Ala Ile Asp Ala Pro Glu  
1 5

15 (2) INFORMATION FOR SEQ ID NO:13:

(I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
20 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(ix) FEATURE:  
(A) NAME/KEY: Region  
25 (B) LOCATION: 1  
(D) OTHER INFORMATION: /note= "Xaa = Asp, Asn, Thr  
or Glu"

(ix) FEATURE:  
(A) NAME/KEY: Region  
30 (B) LOCATION: 2  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:



Xaa Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:14:

- 5 (I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: peptide
- 10 (iii) HYPOTHETICAL: NO
- (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 2  
15 acid" (D) OTHER INFORMATION: /note= "Xaa = any amino

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Asp Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:15:

- 20 (I) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 11 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear
- 25 (ii) MOLECULE TYPE: peptide
- (iii) HYPOTHETICAL: NO
- (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 1  
30 acid" (D) OTHER INFORMATION: /note= "Xaa = any amino
- (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 2

(D) OTHER INFORMATION: /note= "Xaa = Asp, Asn, Thr  
or Glu"

(ix) FEATURE:

5 (A) NAME/KEY: Region  
(B) LOCATION: 3  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

10 Xaa Xaa Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:16:

(I) SEQUENCE CHARACTERISTICS:

15 (A) LENGTH: 11 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(ix) FEATURE:

20 (A) NAME/KEY: Region  
(B) LOCATION: 2  
(D) OTHER INFORMATION: /note= "Xaa = Asp, Asn, Thr  
or Glu"

(ix) FEATURE:

25 (A) NAME/KEY: Region  
(B) LOCATION: 3  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

30 Gly Xaa Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:17:

(I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 amino acids

(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

5 (iii) HYPOTHETICAL: NO

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 1

10 or Tyr" (D) OTHER INFORMATION: /note= "Xaa = Asp, Gln, Gly

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 2

15 acid" (D) OTHER INFORMATION: /note= "Xaa = any amino

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 3

20 or Glu" (D) OTHER INFORMATION: /note= "Xaa = Asp, Asn, Thr

(ix) FEATURE:

(A) NAME/KEY: Region

(B) LOCATION: 4

25 acid" (D) OTHER INFORMATION: /note= "Xaa = any amino

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Xaa Xaa Xaa Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:18:

30 (I) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 12 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

35 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

5 acid"

10 or Glu"

15 acid"

Asp Xaa Xaa Xaa Asp Phe Ala Ile Asp Ala Pro Glu  
1 5 10

(2) INFORMATION FOR SEQ ID NO:19:

20

25

(iii) HYPOTHETICAL: NO

30

35

(ix) FEATURE:

(A) NAME/KEY: Region  
(B) LOCATION: 3  
(D) OTHER INFORMATION: /note= "Xaa = Ala, Asp, Phe, Lys, Thr,  
Tyr, Arg, Val, Cys or Ser"

5 (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 4  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

10 (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 5  
(D) OTHER INFORMATION: /note= "Xaa = Asp, Glu, Gly, Ser, Thr,  
Met, or Asn"

15 (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 6  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

20 (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 7  
(D) OTHER INFORMATION: /note= "Xaa = any amino  
acid"

25 (ix) FEATURE:  
(A) NAME/KEY: Region  
(B) LOCATION: 8  
(D) OTHER INFORMATION: /note= "Xaa = Glu, Gln,  
Ala, Leu or Asn"

30 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
1 5